

AMS-Neve 1073 Re-Issue Review

published in EQ Magazine, December 2004

By Lynn Fuston

The Neve 1073 is probably the most famous and possibly most desirable preamp in the history of recording. Designed by the Rupert Neve company in the early 70s, it has earned its place as the "gold standard" among preamps. This discrete transistor mic/line amp with 3 band EQ and high pass may not be the flattest or cleanest or fastest preamp design, but it epitomizes the "Neve essence," endearing it to generations of engineers and producers worldwide. When I gathered seven world-class engineers together for the Preamps in Paradise video and asked about a "desert island preamp," three of the seven said without hesitation "Neve 1073." With all the preamp options today (who knows how many models from almost 200 manufacturers?), finding so much agreement in such an elite group is a testament to the desirability and sound of the 1073. When I called Fletcher from Mercenary Audio and asked him which preamp he thought is the most copied preamp in the world, he retorted "Copied? Or copied well? The 1073 is without a doubt the most copied mic pre type, however it is very rare that it is copied well." The legendary sound of the 1073 (big, punchy) is well documented so I will focus instead on comparing the reissue to the original unit, to see what differences I can find and how close AMS-Neve came to duplicating the vintage 1073.

Realizing the number of 1073 copies out there, along with the skyrocketing prices for originals, AMS-Neve decided to re-issue a new 1073. However I think the word "recreate" is more accurate. When I pulled the two racked modules out of the shipping box, I thought there had been a mistake. I was to get an original (old) 1073 and a re-issue (new) 1073. But the two I had here were identical. Closer inspection revealed some minor differences and confirmed that they not exactly the same. The "vintage" unit seemed to be in pretty good repair, somewhat rare for vintage Neve modules. The knobs on the old unit were dirty and the frequency-select rings had grease pencil drawn on them where the original paint had worn off. The knurled knob on the new was shiny, the old one was dull. And the high pass filter knob was darker blue on the old one. Cosmetically, those are the only differences I could detect. They looked absolutely identical, so close in fact that I put marker tape on the front of the new one so I didn't confuse them.

Pictures 1 and 2

The front panels on the two units are so nearly identical that you have to know where to look to tell them apart. New on the left and old on the right.



Image 0027



Image 0029

Next it was time to pull the modules out and see what changes were evident inside. I pulled the units from the case, a nice sturdy 3U box that includes power supply, XLR inputs (both line and mic) and outputs on the back, along with power frequency/voltage select and a power switch. On the front, there are LED indicators for +24V and +48V, along with phantom on/off select for each module and a pair of output level trims. The modules look exactly like every other Neve module I've held- the Amphenol connector on the back, with a Lo/Hi switch on the rear for the mic input impedance, for 300/1200 ohms, and completely encased in metal. I did notice

one thing on the outside of one module that struck me as funny. On the old module was a bright red sticker that said "Original old unit." Obviously I wasn't the only one who had difficulty telling them apart.

Picture 3: This tag illustrates how similar the two units are. It was marked so people could tell them apart.



AUT_0045.JPG

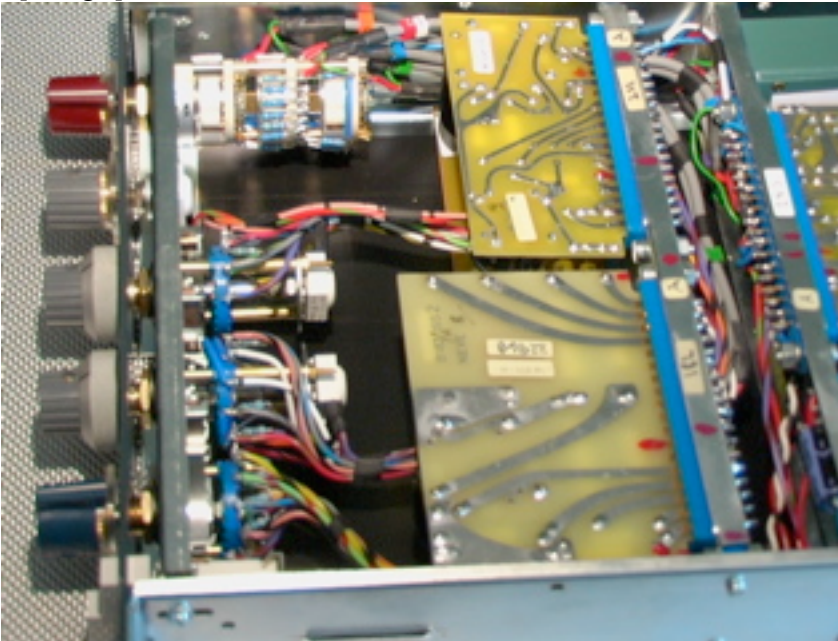
Next I unscrewed the sides, slid them off and got to the heart of the matter. (Even the screws are interchangeable between old and new.)

The first thing I noticed as I placed them side by side was the similarity of the printed circuit board (PCB) traces. A big aspect of preamp design, which some clone-makers overlook, is component placement and PCB design. When copying an old design, you can use the same components in the same circuit but lay out the PCB differently and end up with a unit that sounds totally different. The routing and size of the signal traces have that much influence on the sound. Conversations with many well known preamp designers has confirmed this to me. So I was delighted to see that the PCB boards looked absolutely identical, apart from the color of the board material.

Pictures 4 and 5

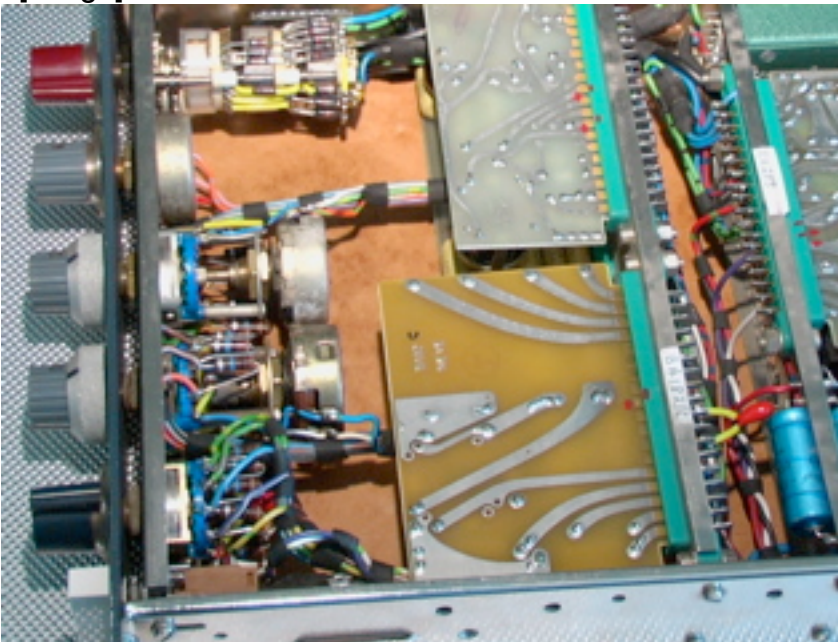
The identical traces are attributable to using the original PCB artwork from the Neve archives. New (top) and old (bottom).

[Image]



NEW--AUT_0035.JPG

[Image]



OLD--AUT_0036.JPG

When I asked the technical design department at AMS-Neve about the PCBs, they informed me that "the PCBs look identical because they are made with the original tape PCB artwork, carefully stored over the years and now in use again. All original PCB drawings are used." Chalk one up for "historical accuracy." That made me wonder if the same was true for the accurate reproductions of the front panels as

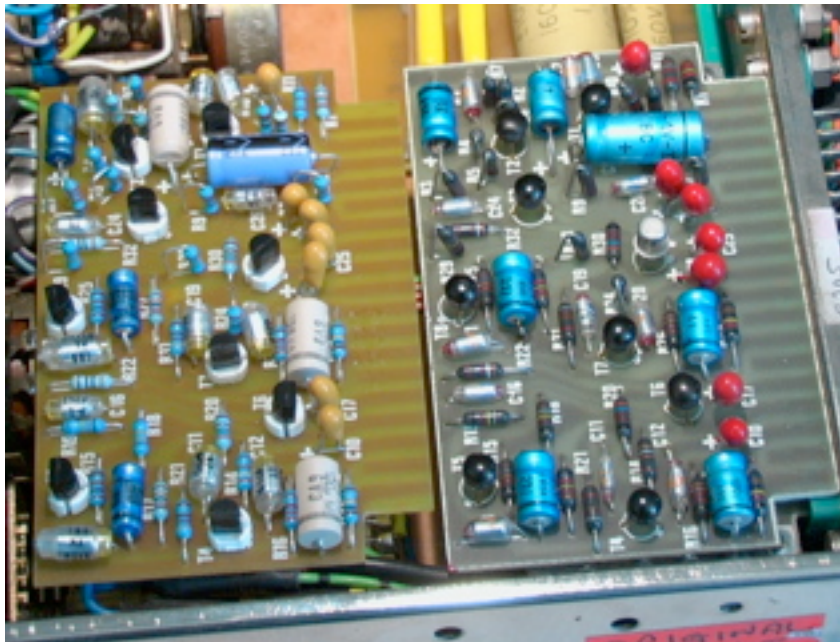
well. The word from AMS-Neve? On those "it was more difficult because we had to spend a great deal of time matching today's CAD fonts with the original hand produced artworks." Well, original artwork or not, to my eye the front panel is indistinguishable from the original. Chalk one up to "faithfully accurate reproduction."

The next thing I noticed was the looming (the way the cables are routed and wrapped between individual PCBs). This aspect is just as significant as the PCB layouts and I was pleased to see the cables were positioned and wrapped exactly like the original. The faithfulness to the original design and construction is overwhelmingly evident.

Picture 6 (optional)

Notice the identical component layout, making it difficult to distinguish new (left) from old (right), even with the original capacitors on the old board, which should be changed for better performance.

[Image]



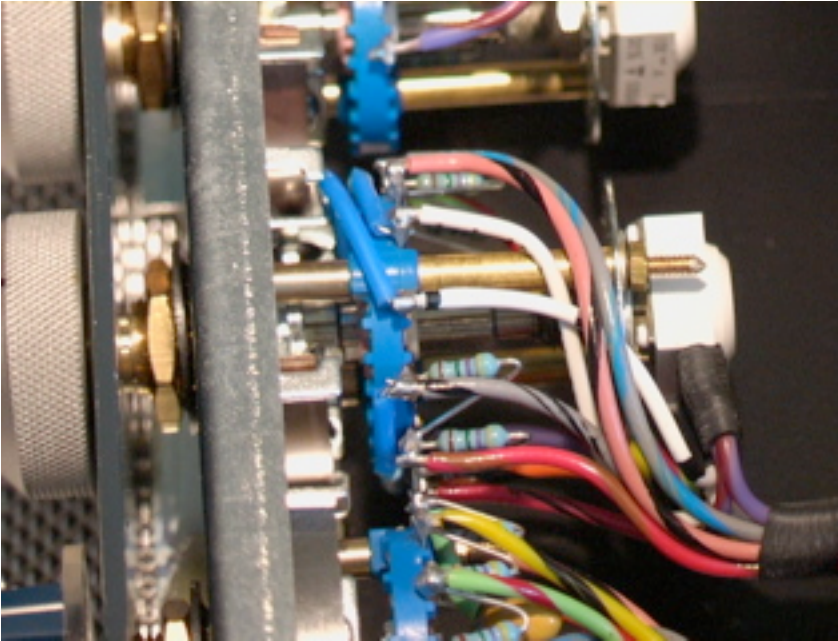
AUT_0043.JPG

So lots of similarities. Now let's talk about some differences you will notice inside. I noticed a difference in the potentiometers and resistors between old and new, as you can see in the images below. The old carbon track pots, corroded over the years, were replaced with newer conductive plastic pots on the re-issue. The larger brown resistors on the old are replaced with smaller metal film resistors, bluish in color.

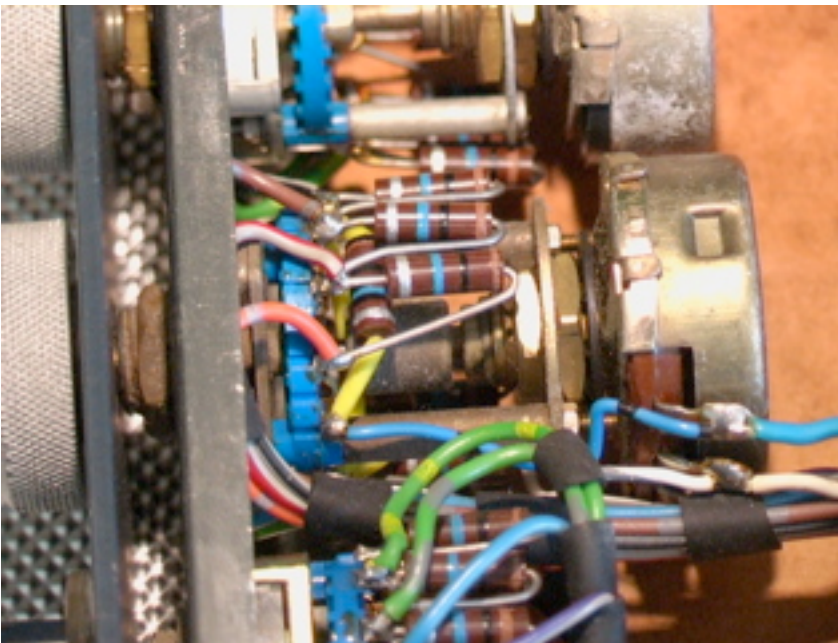
Compare the new metal film resistors and small pots (above) with the old brown

resistors and carbon pots (below).

[Image]



NEW--AUT_0037.JPG



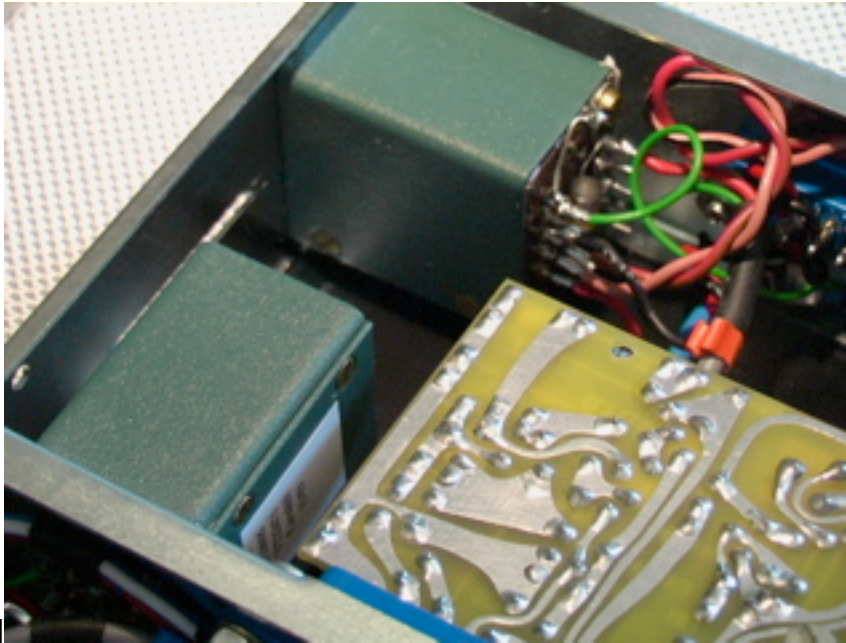
OLD--AUT_0038.JPG

Probably the most influential thing to the sound of the 1073 is the audio transformers. On the new module, although identical in size and color, the transformer case markings were different. I asked the AMS-Neve team to explain

these three differences.

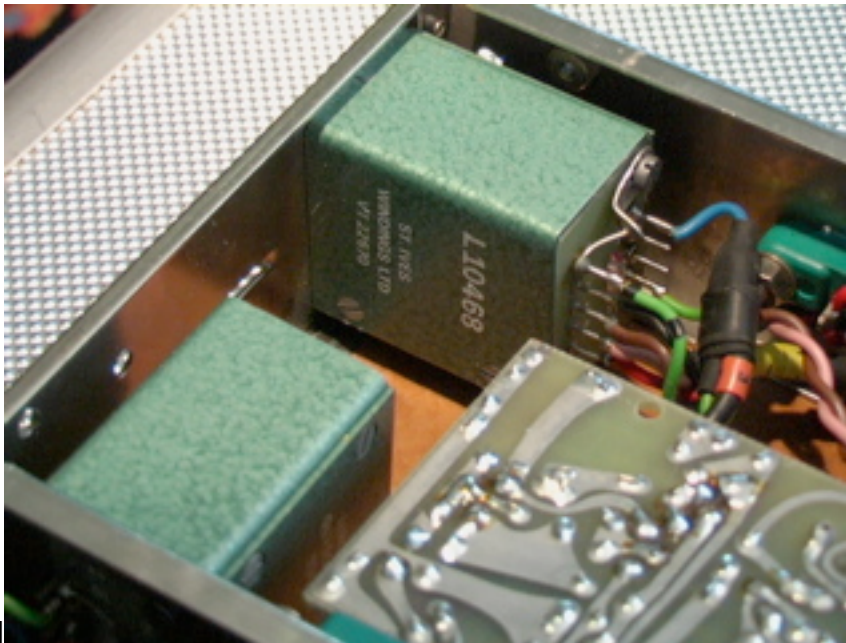
Picture 7

Notice the identical size and placement of the transformers and the identical PCB layout. New (above) and old (below).



[Image]

new--AUT_0041.JPG



[Image]

old--AUT_0042.JPG

Simon Daniels, Product Marketing Manager of AMS-Neve responded:

- Potentiometers

Originally Neve used "Plessey E" carbon track potentiometers, but during 1977 a new range of pots was introduced after extensive evaluation. These were manufactured by SFER Nice, and had better performance, especially in terms of noise and life and they were physically much smaller. Today we still use the white

SFER PA11 pots which have conductive plastic tracks and gold plated contacts which give excellent audio performance, longevity and linearity.

- Resistors

The resistors used today are metal film and exactly the same specification as the ones used in the original units. They are available from our suppliers and component size is reduced.

- Audio Transformers.

The original transformers were co-designed in 1968/9 by Neve and Marinair Rader of Harlow, who then manufactured the transformers for Neve. As Neve expanded in the 1970's, a second supplier was required and so another local (to Cambridge) transformer manufacturer (St. Ives Windings) produced transformers of the same design. So Neve used both suppliers. The Marinair company eventually closed. So both Marinair and St. Ives manufactured transformers for "original" Neve units. The transformers used in the current AMS-Neve built modules are to the same design and from the same factory in St. Ives in Cambridgeshire. (The parent company name is now changed to Carnhill, the name on the current transformer.)

Those all sound like logical choices to me. And speaking of sound, it's time for the ultimate question. "What does the new module sound like compared to the original?"

After detailing all the similarities, you may not be surprised to find that it "sounds like a 1073." Using the old and new pair on stereo sources such as piano, no noticeable differences were detected between left and right channels. I ran tones to check the conformity of the gain staging and it was right on. The two equalizers I compared by ear and found that the curves and values of the EQ sound identical. In studio use, I did spot a few differences that most any Neve aficionado would notice. The switches for EQ and Phase on the old Neve modules are notorious for the scratchy sound they make. The new ones feel the same but don't make that annoying noise. The frequency select switches on the old modules go "chunk" when you turn them. On the new one, they feel lighter and go "click." The boost/cut knobs on the old 1073 are very heavy and you have to purposefully "twist" them.

On the new one, they feel lighter and you can just turn them. The old rotary high pass switch is actually easier to turn than the new one. As you can tell, I'm reaching to find differences and no one would expect 30+ year old switches and pots to operate like new ones. Other than the nuisance factors of the noisy switches, none of these will have any impact on the sound of the unit.

All in all, I think AMS-Neve has done a spectacular job of recreating a classic and the new module is quite worthy to wear the Neve symbol and the 1073 name. Those who purchase one won't have "vintage Neve" bragging rights but they won't have old gear frustrations either. They will certainly be entitled to say "I have a Neve 1073" without reservation.

Sidebar 1

Plus:

As faithful a reproduction as possible, with identical PCBs and identical or better components

Has the classic 1073 sound with better reliability/longevity

Will work side by side with vintage 1073 modules in existing racks

Output level control and switchable phantom power on front panel

Only slightly more expensive than original 1073 modules

Minus:

No front panel power switch

No boost/cut value markings, only dots, just like original 1073

Price: At \$3800 per module, this represents the upper stratosphere of preamp prices

Sidebar 2

EQL Button: Switches the equalizer in or out of circuit.

PHASE Button: Gives 180° polarity change at Balanced Output.

High Frequency: Smooth +/-16dB fixed frequency shelving at 12kHz.

Low Frequency: Smooth +/-16dB shelving with selectable frequencies of 35Hz, 60Hz, 110Hz & 220Hz.

Mid Frequency: Smooth +/-18dB peaking, fixed 'Q' with selectable centre frequencies of 0.36kHz, 0.7kHz, 1.6kHz, 3.2kHz, 4.8kHz & 7.2kHz.

High Pass Filter: 18dB per octave slope, switchable between 50Hz, 80Hz, 160Hz & 300Hz.

Sidebar 3

Clones and Transformers

The topic of transformers in Neve clones is worthy of attention since the transformer has such a large effect on the sound. Carnhill is the same company that supplies the majority of the "cloners" with their LO 1166 output transformers [a few of the "cloners" do indeed use original transformers]. AMS/Neve tested the LO 1166 output transformers that Carnhill has been selling the "cloners" and they found an absolutely unacceptable level of low frequency distortion. After many rounds, Robin Porter, one of the original Neve staff who was involved with the first batches of 1073's finally got Carnhill to build LO 1166 transformers that conformed to Neve specification. Neve and only Neve have access to these output transformers. These transformers are a major contributor to why the AMS/Neve reissue units are closer in tone and texture to the original modules than any of the clones currently available.

Thanks to Fletcher and Dan Kennedy of Great River for clarifying some vintage Neve aspects for me.

Bio

Lynn Fuston began his recording career 25 years ago sitting behind a Neve 8068. He still fondly remembers that sound.